

This application is a continuation-in-part of U.S. patent application serial number 09/413,664 filed on October 6, 1999.

BACKGROUND OF THE INVENTION

Field of the Invention

This invention pertains to a control box for controlling a plurality of basketball backstops, basketball height adjusters, curtains to separate arena courts, and auxiliary gymnasium equipment.

Description of the Prior Art

It is known in the prior art to have basketball arenas which can be configured into a plurality of individual practice courts by curtains between practice courts. It is further known that the basketball backstops can be positioned for play or folded away for storage. Similarly, the height of the basketball backboard may be adjustable for practice purposes or to compensate for different skill levels of different groups. However, the adjustment of these backstops, height adjusters and backboards has typically

been done manually and/or on an individual basis. For instance, U.S. Patent No. 5,800,296 relates to the adjustment of the height of a single backboard. Moreover, while goal backboards may be raised or lowered and the screens moved by electric motors, each is typically controlled by an individual key-operated switch. The switches for each unit can be centralized on a panel, but still separate keys are needed for each unit and for the operation of the curtain separators. While control of multiple overhead doors is disclosed in U.S. Patent No. 4,612,485, this has not heretofore been shown to be applicable to large basketball arenas.

OBJECTS AND SUMMARY OF THE INVENTION

It is therefore an object of this invention to provide for centralized electronic control of the basketball backstops, height adjusters, curtains to separate arena courts and auxiliary gymnasium equipment.

It is therefore a further object of this invention to provide centralized electronic control of basketball backstops, height adjusters, curtains and auxiliary gymnasium equipment wherein the need for separate mechanical keys for each operation is

eliminated.

It is therefore a still further object of this invention to provide centralized electronic control of basketball backstops, height adjusters, curtains and auxiliary gymnasium equipment wherein the need for a panel with separate keyholes for each operation is eliminated, but where security can be maintained so that unauthorized users cannot make these adjustments, but temporary access may be granted for maintenance workers and temporary workers.

This object is met by providing a centralized numeric or alphanumeric keypad wherein a security code, the type of operation (up or down), type of equipment (backstop, height adjuster, curtain or auxiliary gymnasium equipment), the number of the item being moved (e.g., backstop number 1, 2 or 3, etc.) can be entered, resulting in electrical control of the various mechanical devices in accordance with the instructions entered. The centralized keypad typically operates and generates relay control signals at a lower voltage, such as 12 volts. The control relays, in turn, control a substantially higher voltage, such as 120 volts, which is used to move the various mechanical devices. This

affords for increased safety, allows for reduced cost and complexity of implementing the use of the centralized keypad and further allows for the consolidation of power lines.

BRIEF DESCRIPTION OF THE DRAWINGS

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

Figure 1 is a front plan view of the keyboard of the present invention.

Figure 2 is a schematic of the present invention.

Figure 3 is a schematic of some of the various power lines of the present invention.

Figure 4 is a schematic of some of the various control lines as they relate to some of the various power lines of the present invention.

Figure 5 is a schematic of various other circuitry relating to the present invention.

Figure 6 is a schematic of the circuitry relating to the header generation and the input to the relay box.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings in detail wherein like numerals refer to like elements throughout the several views, one sees that Figure 1 is a front plan view of the keypad 10 of the present invention. As shown in the various figures, keypad 10 typically operates at a relatively low voltage, such as twelve volts. This allows for reduced cost and complexity of keypad 10, reduces installation costs, reduces insulation requirements, eliminates the need for a conduit for the cables and provides increased safety.

Typically, a user would enter a confidential user's number or customized access code on the numeric (or alphanumeric) keys 12. This prevents unauthorized use and may be changed when operators leave. Moreover, this can be programmed to provide temporary access for maintenance workers and temporary workers. This is electronically implemented by the ROM 13 and the CPU 15 shown in Figure 6. The user would then choose whether a backstop, a height adjuster, a curtain or auxiliary device is intended to be moved by choosing corresponding keys 14, 16, 18, 20, respectively, then would choose the number of the intended backstop, height adjuster

or curtain intended to be moved by entering the corresponding number on numeric (or alphanumeric) keys 12. The user would then press either the "up/on" key 22 or the "down/off" key 24 to command the corresponding operations, corresponding to the "up", "down" or "neutral" lines shown in Figure 2, which generate relay control signals 28 which are communicated to Figure 4. Figure 2 further illustrates auxiliary latched relays 35 which allow the operation and control of on/off devices (via keypad 10) such as lights, scoreboards, public address systems or any other pieces of equipment compatible with the power supply, such as 120 volts, 15 amps.

Additionally, keypad 10 can have programming capabilities as controlled by the various keys 12-20, and the functions of the various keys can be reprogrammed with various numbers assigned by the customer to various pieces of equipment (allows for customer assigned equipment designators or numbering changes), as implemented by the ROM 13 and the CPU 15 shown in Figure 6.

Alternatively, keypad 10 can be implemented as a touch screen with virtual animation and can be customized for a particular application.

Typically, the output of control unit 26 associated with keypad 10 would be communicated as the various relay control signals 28 as shown in Figure 3, typically operating at twelve volts. As shown in Figure 4, these relay control signals 28 activate switches 30 which apply 120 VAC, 15 amp, power supply 32 thereby generating relay power signals 34 which are arranged, as shown in Figure 2, as the "up" or "down" relay lines, that is, relay power lines (in combination with the illustrated neutral or ground lines). As a single power supply line powers all equipment operated by keypad 10, the power supply is consolidated thereby reducing the cable, conduit and labor requirements. Similarly, there is no need for individual power feeds from the breaker to each piece of equipment. This reduces installation expenses.

While it has been envisioned that there would be ten relay sets in a relay box, it has been further envisioned that twenty relay sets in a relay box would offer the advantages of being able to operate more winches with a single relay box and of being able to reduce the overall costs for larger gyms both in the equipment required and the labor required for the associated wiring, etc.

Additionally, multiple relay boxes may be connected in series

and controlled by a single keypad 10. Dipswitches 27 (see Figure 3) within the relay boxes are set to establish the addresses of each set of relays within a given box.

Figure 5 is a schematic of various other circuitry relating to the present invention while Figure 6 is a schematic of the circuitry relating to the header generation and the input to the relay box.

Thus the several aforementioned objects and advantages are most effectively attained. Although a single preferred embodiment of the invention has been disclosed and described in detail herein, it should be understood that this invention is in no sense limited thereby and its scope is to be determined by that of the appended claims.